WHAT IS CLAIMED IS:

1.   A color conversion method of inputting at least two color difference values and obtaining a corresponding saturation value, comprising steps of:

5   creating a main lookup table which stores saturation value for the color difference values, and a sub-lookup table for obtaining an address for accessing the main lookup table;

        determining the address of the main lookup table

10   in correspondence with two color difference values on the basis of the sub-lookup table and a difference between the two color difference values; and

        obtaining a saturation value corresponding to the two color difference values from the address determined

15   in said determining step.

2.   The method according to claim 1, wherein the main lookup table has a smaller number of entries than the number of all possible combinations of the two color

20   difference values by utilizing symmetry of the saturation value for the color difference values.

3.   The method according to claim 1, wherein the sub-lookup table stores an address of an entry in which

25   the two color difference values are the same.

4.   A lookup table for obtaining an output value

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defined for an input value, comprising:

a main lookup table adapted to, when a definition of an output value has or is regarded to have symmetry for a plurality of input values, or when a combination

5 of the plurality of input values is limited by a specific existence condition, store the output values for the plurality of input values in consideration of at least one of the symmetry and the specific existence condition; and

10 a sub-lookup table adapted to store an address of an entry in which the plurality of input values are the same,

wherein an address of said main lookup table is determined on the basis of said sub-lookup table and a

15 difference between the two input values, in correspondence with two arbitrary input values.

5. The table according to claim 4, wherein the specific existence condition includes a color space.

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6. The table according to claim 4, wherein the output value includes a saturation in a color space determined in advance.

25 7. An image processing apparatus for inputting image data and obtaining a corresponding saturation value, comprising:

calculation means for calculating a color
difference value of each pixel of the input image data;

a main lookup table adapted to store saturation
values for the color difference values;

5   a sub-lookup table adapted to obtain an address
for accessing said main lookup table in correspondence
with the color difference value;

determination means for determining the address
of said main lookup table in correspondence with two
10   color difference values of pixels calculated by said
calculation means, on the basis of said sub-lookup
table and a difference between the two color difference
values; and

read means for accessing said main lookup table
15   on the basis of the address determined by said
determination means and reading out a corresponding
saturation value.

8.   The apparatus according to claim 7, wherein said
20   main lookup table has a smaller number of entries than
the number of all possible combinations of the two
color difference values by utilizing symmetry of the
saturation value for the color difference values.

25   9.   The apparatus according to claim 7, wherein said
sub-lookup table stores an address of an entry in which
the two color difference values are the same.